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EDITORIAL

Global Medical Education: The Bharat vision

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At the 27th Tripartite Annual Executive Committee Meeting of the World Organization (OIE), the WHO Director-General emphasized that future pandemics can be prevented only with an integrated One Health approach. This should be done by taking global partnerships to a new level.

The COVID-19 pandemic has reinforced the idea that a holistic and collaborative approach to health is essential. By recognizing the inter connectedness of human, animal, and environmental health, the global community can better prepare for and respond to future health challenges. "One World, One Health" encapsulates the idea that the well-being of all living beings is intricately linked and requires a unified effort to safeguard and promote health worldwide.

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To standardize medical education, it is crucial to work towards aligning Indian medical education standards with global benchmarks, ensuring compatibility and recognition of Indian medical degrees worldwide. We are constantly strengthening the mechanisms that enable our participation in international accreditation processes to enhance the credibility of Indian medical education.

Health workforce challenges

The world has to grapple with several healthcare challenges in the future.

It has been estimated that by 2030 there would be a shortage of 18 million health care workers (1.8 crore) worldwide, with the shortage of doctors alone being approx. 50 lakhs.

This statement refers to a projected shortage of healthcare professionals by the year 2030. Workforce shortages in healthcare, including doctors, nurses, and other professionals, can have significant implications for the ability to provide

adequate medical care. It is essential for governments and healthcare systems to anticipate and address these shortages through strategic planning, training programs, and policies to ensure a sufficient and skilled workforce [1].

The health sector's impact on the global economy is expected to reach 12 trillion dollars by the year 2040. The health sector is a substantial contributor to national and global economies. Factors such as healthcare spending, medical research, pharmaceuticals, and related industries all contribute to the economic impact of the health sector. A growing health sector can positively influence economic development but also present challenges related to costs and resource allocation.

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into health applications is projected to contribute an additional 4 trillion dollars to the global economy within the next 10 years. The use of AI and ML in healthcare has the potential to enhance diagnostics, treatment plans, and overall efficiency in the healthcare system. However, it also raises ethical considerations, regulatory challenges, and the need for careful implementation to ensure patient privacy and data security.

Current status of the number of undergraduates & postgraduates

The current status of the number of undergraduates and postgraduates globally shows a deficiency. In the USA, 30,000 to 35,000 new medical graduates and 85,000 postgraduates are produced annually. In India, these figures are: about 1,10,000 Undergraduates (UGs) per year in 700 medical colleges and 65,000 Postgraduates (PGs) every year distributed over medical colleges and hospitals across the country.

Overall, there is a projected deficit of 5 million doctors compared to the societal demand. This projected shortage emphasizes a concern about the adequacy of the healthcare workforce to meet the growing healthcare needs of societies globally. Factors contributing to this shortage can include population growth, aging populations, and the increasing burden of chronic diseases. In both countries, the balance between the number of medical graduates and available postgraduate positions is a critical consideration. The ratio of postgraduate seats to medical graduates in India is highlighted as less than 1:1, indicating potential challenges in providing specialized training opportunities for all medical graduates. It is important to note that these figures provide a snapshot of the current state. Addressing healthcare workforce challenges requires a multifaceted approach, including policies for education, training, retention, and distribution of healthcare professionals based on societal needs. Additionally, workforce planning should consider factors such as geographical distribution, specialties, and the evolving healthcare landscape.

Rural India

India is looking to cater to the shortage in rural India. The top 10 causes of death cannot be treated by MBBS alone. We need to address specialist deficiencies.

The top 10 causes of death in rural India require specialized medical attention beyond what can be provided by general practitioners with an MBBS degree. The emphasis on catering to the shortage in rural India indicates a recognition of the

disparities in healthcare access between urban and rural areas. Rural areas often face challenges in attracting and retaining specialized healthcare professionals, leading to a deficiency in comprehensive healthcare services.

In rural settings, access to specialized medical care may be limited, making it crucial to develop strategies to address this gap. Implementing programs to train healthcare professionals, including specialists, with a focus on rural healthcare needs. Encouraging and incentivizing specialists to work in rural areas is essential. Investing in healthcare infrastructure in rural areas, including the establishment of well-equipped primary health centers and district hospitals, can create a conducive environment for specialists to work and serve the rural population.

Low cost, high quality medical education

Several Indian states offer low-cost, high-quality medical education, e.g., Kerala, Karnataka, Chhattisgarh, etc.

India indeed has a unique infrastructure for providing low-cost medical education compared to many other countries. India has a considerable number of government-run medical colleges that offer education at subsidized rates. These institutions receive financial support from the government, enabling them to provide medical education at a lower cost compared to private institutions. The admissions process for medical courses in India is highly competitive and primarily based on merit. National-level entrance exams determine admission to medical colleges. This merit-based system helps ensure that deserving students have access to medical education, irrespective of their financial background. Many state governments regulate the fees charged by private medical colleges to prevent excessive charges. In certain states, medical graduates may be required to serve in rural or underserved areas for a specified period as part of their commitment to society. This approach aims to address healthcare disparities and ensure that medical professionals are distributed across the country, including in remote regions. Various government scholarships and subsidies are available to support students pursuing medical education. These financial aids further reduce the overall cost burden on students.

While India's infrastructure for low-cost medical education has several positive aspects, challenges such as a high demand for medical seats, resource constraints, and the need for continuous improvement in the quality of education still exist. Nevertheless, the efforts made to make medical education more accessible and affordable contribute to the unique landscape of medical education in India.

National Board of Examination in Medical Sciences' (NBEMS) Joint Accreditation scheme:

To utilize the available resources of hospitals and to provide them with an opportunity to give PG training, Joint accreditation of the hospitals has been approved by the Governing Body, NBEMS in its meeting dated 25.11.2022.

The objectives of the Joint Accreditation scheme

Resource Utilization, Case Load, and Case Mix Distribution, Upscale the quality of the training programme & Financial Sharing.

To begin with, for the initial year/s the concept of Joint Accreditation shall only be

limited to Broad Specialties. In this scheme, four types of different institutions can collaborate for the purpose of Joint Accreditation:

i. Govt. Hospital to Govt. Hospital
ii. Private to Govt. Hospital
iii. Private to Private Hospital
iv. Standalone Imaging/Diagnostic Lab Centres along with a Hospital

The institutions that cannot participate are those that are already running the NMC courses.

The National Board of Examinations in Medical Sciences (NBEMS) has the primary mandate of filling the specialist gaps in the country. Over the years, NBEMS has come up to expectations and there has been a steep rise in seats (Figure 1). Presently, there are 14,190 PG seats distributed over 1,339 hospitals (Figure 2).

India has about 70,000 hospitals. In the first phase of expansion, we anticipate additional engagement with 10% of this hospital pool, which would add 7000 more hospitals participating in the accreditation process. As a result, there is a potential to add 75,000 PG seats. This would be possible due to the mandate from the Govt. and NMC to NBEMS to engage with private hospitals. In addition to broad and specialty courses, NBEMS also has diplomas and fellowships (Figure 3).

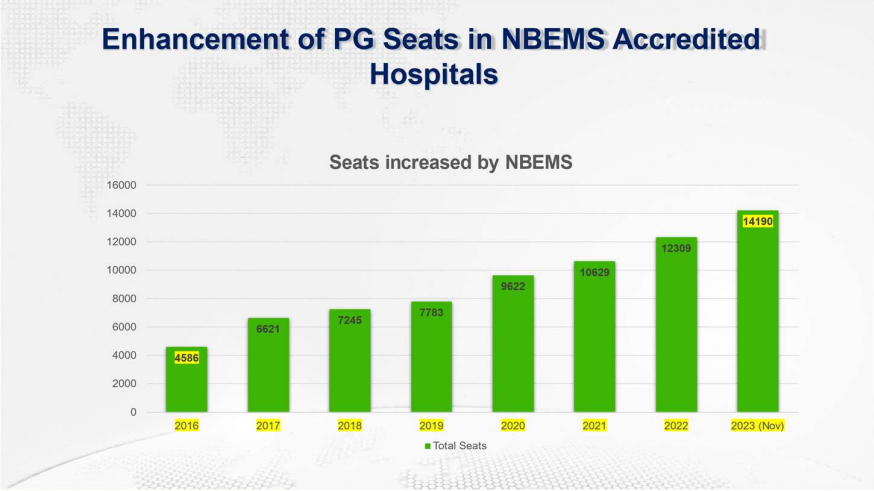

Figure 1. Enhancement of PG Seats in NBEMS Accredited Hospitals

NBEMS Current Seat Status

Course wise break up of NBEMS seats is tabulated below:

DNB seats		DrNB seats	FNB seats	Post MBBS Diploma	Total Seats
Post MBBS DNB	Post-Diploma DNB				
5172	2806	2631	467	3114	14190

The distribution of NBEMS seats across various Government and Private hospitals is tabulated below:

Government		Private		Total	
Hospitals	Seats	Hospitals	Seats	Hospitals	Seats
438	4468	901	9722	1339	14190

Figure 2. NBEMS Current Seat Status

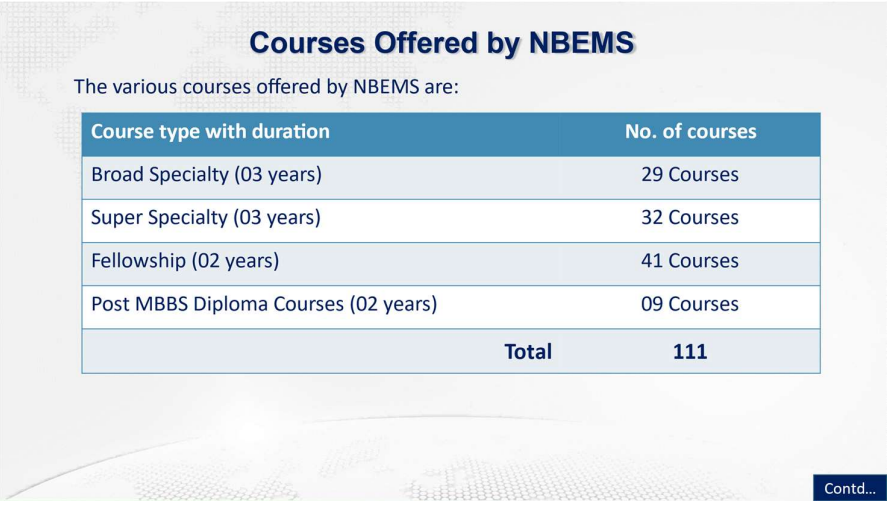

Figure 3. Courses Offered by NBEMS

Undergraduate seats are the denominator for specialist seats. NBEMS has proposed to increase the UG seats by facilitating MBBS seats in private hospitals.

Simply increasing the number of PG seats without corresponding increases in the number of UG seats is not a comprehensive solution to address the shortage of doctors in India. It is important to increase both UG and PG seats simultaneously to ensure that there is an adequate number of trained doctors at all levels of the healthcare system. There are several reasons why increasing the number of UG seats is important.

1. It will increase the number of students who are eligible to pursue higher medical education and specialize in various medical specialties.
2. It will help to address the shortage of doctors in rural areas and underserved regions, where the need for healthcare professionals is greatest.
3. It will help to reduce the workload of existing doctors, thereby improving the quality of healthcare services provided.

Standards of teaching

In addition to increasing the number of UG and PG seats, it is also important to ensure that the quality of medical education is maintained. The curriculum and training provided to medical students must be relevant, up-to-date, and consistent with the latest medical practices and research. The accreditation process for medical colleges must be robust and stringent, and there should be regular monitoring and evaluation to ensure that the standards are being met.

Technology and innovation sharing of technological advancements and innovations in medical education

India has a strong Information Technology foundation through its world-class IITs. Collaboration with global partners would further help to develop and implement cutting-edge medical education technologies.

Education methods for learning

Improved standards of teaching & inclusive participation, blended learning and flipped learning approaches can play an important role in education by incorporating technology and non-traditional instructional methods. Blended learning combines traditional face-to-face instruction with online learning activities. It integrates technology and digital resources into the classroom, allowing students to engage in both offline and online learning experiences. In a blended learning model, students may have some control over the time, place, path, or pace of their learning.

Blended learning is being introduced by the NBEMS for the residents in-training. This is being done through a smart phone App for the PGs.

For the UGs, there are a variety of platforms that could be introduced—virtual class rooms, group discussions & debates in the library, and also through hybrid models of education.

Telemedicine and Tele-education

Leveraging India's expertise in telemedicine could contribute to global efforts to provide healthcare education remotely, especially in underserved regions. Sharing best practices and technological solutions will contribute to effective tele-education in the medical field.

Quadruple Aim

There is an increasing need to promote 'Quadruple Aim'**.** The quadruple aim of medical education is to:

a. Improving the care of individual patients,
b. Promoting the health of populations and
c. Lowering health care costs
d. Wellbeing of health care providers in order to be effective.

The Quadruple Aim is directed at the wellbeing of nurses, advanced practice providers, medical assistants, staff and anyone else involved in caring for patients.

Quality of care

Quality of care is measured based on **evidence-based professional knowledge** and is critical for achieving universal health coverage. Quality health care should be:

a. **Effective** – providing evidence-based healthcare services to those who need them.
b. **Safe** – avoiding harm to people for whom the care is intended.
c. **People-centred** – providing care that responds to individual preferences, needs and values.

Besides the Perineal platforms, such as collaborative research, international conferences, faculty & student exchange, they should continue to be strengthened.

Global Health Initiatives

Global health initiatives are needed, such as engagement in collaborative efforts for research and intervention programs in areas such as infectious diseases, non-communicable diseases, and public health.

Language and Cultural Competency Training

There is a need to develop programs that enhance the language and cultural competency of medical professionals, preparing them to work in diverse global settings. It would require the integration of

cross-cultural communication training into medical curricula.

Cultural competence in healthcare

Cultural competence in healthcare combines the tenets of patient- and family-centered care with an understanding of the social and cultural influences that affect the quality of medical services and treatment.

Global Health Diplomacy engagements

Finally, Global Health Diplomacy engagements would foster collaborations and partnerships with other countries and international organizations. These efforts contribute to international discussions on health policy, ethics, and healthcare system improvements.

Reference

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